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AIR WAR COLLEGE  
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AIRCRAFT MAINTENANCE OFFICERS  
A LOOK TO THE FUTURE

by

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A RESEARCH REPORT SUBMITTED TO THE FACULTY  
IN  
FULFILLMENT OF THE RESEARCH  
REQUIREMENT

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# AIR WAR COLLEGE RESEARCH REPORT ABSTRACT

TITLE: Aircraft Maintenance Officers: A Look to the Future

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Remarks on some historical aspects of the structure, duties, and responsibilities of the aircraft and munitions maintenance officer career field. A description of current Air Force accession, classification and training policy is compared to projected advances in technology and changes in organizational concepts to highlight the potential mismatch in maintenance officer preparedness for the challenges of tomorrow. Several potential shortfalls are noted. Five ways to overcome the existing problems are suggested. (SDW)

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## BIOGRAPHICAL SKETCH

Lieutenant Colonel John N. Edenfield Jr. (MA, Central Michigan University) has been interested in the structure of the aircraft maintenance officer career field since his commissioning, but more reflectively since his assignment as the Maintenance Manpower and Personnel Staff Officer at the Air Staff from 1979-1982. He has served in a variety of maintenance positions from squadron through command level in Southeast Asia, in the Tactical Air Command, and in the United States Air Forces Europe. He completed Squadron Officer School and National Security Management Course and is a graduate of the Air Command and Staff College, where his study on enlisted maintenance specialty classification earned him a Special Research Award. Lieutenant Colonel Edenfield is a graduate of the Air War College, Class of 1988.

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## CHAPTER I

### INTRODUCTION

A former United States Air Force Deputy Chief of Staff for Logistics, Lieutenant General Leo Marquez, advised during a 1987 address in Europe that the future of aircraft maintenance officers should reflect a "generalist" orientation. He further suggested that officers should be concerned with combat organizations as well as the day to day mechanics of sortie generation. More than reviving the age old argument of "generalist" versus "specialist", his advice calls into question the maintenance community's preparedness to meet the challenges of the twenty-first century. Is today's maintenance officer specialty properly structured and trained to meet near and long term requirements? If not, have the required changes been identified and a plan developed to ensure orderly evolution of tomorrow's maintenance leaders? In both cases, the answer is a qualified NO.

During the Air Force's forty year history, we have always been leaders in technological development, setting the pace for adaptation of new capabilities to the employment of airpower. With the evolution of hardware, our preparation of personnel in the operational arenas has ensured a competitive edge. Our performance record in the



mission support skills has been somewhat less successful; it has been reactive in nature to catch up to change rather than proactive in anticipation of change. The Air Force can ill afford to continue this modus operandi. Operational success demands a strong, viable mission support structure and no where else is this more obvious than the field of logistics in general and aircraft and munitions maintenance in particular. Is this career field ready for tomorrow? If not, why not? What challenges lay ahead? Will the USAF of the year 2000 look much different than that of today?

To be sure, technological advancement will be the central focus not only tomorrow but for the foreseeable future. "High tech has become the American way of life." (5:21) But a word of caution must here be sounded. We have, in the not too distant past, learned painfully the error of our "smart machine, dumb man" maintenance concepts. More capable systems still require equally capable personnel to operate and maintain them, and equally capable people to manage and lead the operators and maintainers. While we cannot afford to stifle advancement in technology, neither can we presume current organizational, personnel, and management philosophies are properly focused to harness and employ new capabilities. Development of the mission support infrastructure must be on a par with that of hardware,

especially in the areas of personnel classification and training, if supportability is to be a reality.

While we wrestle with these often competing needs, we must be mindful of the context in which these developments will occur. First, studies of demographics advise that the cohort base is declining commensurate with an increasing demand in both the military and public sectors, especially in the technologically oriented specialties. Second, Congress has levied specific restrictions on force size that should pressure senior leadership to apply serious consideration to total manpower requirements. Unfortunately, myopic centrism and infatuation with unit size appear to weigh more heavily in the manpower requirements determination process than honest attempts at cost effective balancing of supply versus demand. No one "likes" to take reductions in manpower resources. But we, the USAF, must soon realize that more effective utilization of resources, especially personnel resources, even if equated to reduced authorizations and more stringent accession, classification, and assignment policies, is in the national interest. The rationale for change is compelling.

In analyzing the status of the maintenance officer career field, it must be acknowledged that several prejudices and contentions were held at the outset of this

project. These can be summarized as follows: accession policy was based on the premise that "anyone" could be a maintenance officer; basic training programs had not kept pace with the realities of the "field"; consolidation of aircraft and munitions career fields was long overdue; and, major commands preferred to "close loop" the assignment system to retain "favorites." The focus of the research effort, however, was not to prove or disprove these perceptions but to determine if the functional and resource managers, supporting agencies, and the "maintenance community" at large had considered any of these or similar issues. If they had, what was underway or planned in this arena?

I fear that the maintenance community has not given the topic sufficient thought. Recent proposals to upgrade the basic training program were long, long overdue. Realization of the fallaciousness of separate aircraft and munitions specialties is equally delinquent. Maintenance officers need to take a hard look at their readiness to meet the challenges ahead. This paper recommends several steps in that direction.

## CHAPTER II

### EVOLUTION OF A CAREER FIELD

A historical perspective of all related aircraft maintenance career fields is a study of both stability and change. Stability in the consistent recognition of the need for an embodiment of officers properly trained in the intricacies of the maintenance business. Change in the evolution of a career field from many specialties to few, from specialist to generalist, and from technician to manager. Not all of this evolution has been for the best.

The 1 January 1952 Air Force Manual (AFM) 36-1, The Officer Classification System, provides the departure point for an analysis of the Air Force Specialty Codes (AFSC) in the maintenance career field. Thirty-six years ago, the business of avionics was tucked into the Communications-Electronics Occupational Field (AFSC 50XX), the munitions arena had a separate Armament Occupational Field (AFSC 32XX), and the Maintenance Engineering Occupational Field (AFSC 43XX) included both aircraft and ground equipment (see Table 1). (18)

TABLE 1

## AIR FORCE SPECIALTY CODE STRUCTURE 1952

## Communications-Electronics Occupational Field

3016	Communications-Electronics Staff Officer
3024	Electronics Countermeasures Officer
3034	Communications Officer
3044	Ground Electronics Officer
3054	Air Electronics Officer

## Armament Occupational Field

3216	Armament Staff Officer
3224	Guidance Systems Officer
3234	Armament Systems Officer
3244	Armament Operations Officer
3254	Ammunition Officer
3265	Guided Missile Officer
3274	Nuclear Weapons Officer
3284	Nuclear Officer

## Maintenance Engineering Occupational Field

4316	Aircraft Maintenance Staff Officer
4324	Aircraft Performance Engineer
4334	Flight Test Maintenance Officer
4344	Aircraft Maintenance Officer
4355	Production Control Officer
4364	Fabrication and Repair Officer
4376	Ground Equipment Maintenance Staff Officer
4384	Ground Equipment Maintenance Officer

The transition to the classification structure of today (Table 2) has not been as direct as that suggested by comparing the two tables. The first change is the name of what we are categorizing--occupational fields have given way to utilization fields. Secondly, armament and maintenance engineering have become aircraft maintenance and munitions. Third, shreddouts have been used throughout to denote types

of aircraft, engines, and munitions. Lastly, the "uniqueness" of avionics and munitions has resulted in on-again, off-again moves to separate then merge these disciplines. In the final analysis we have determined that avionics is not unlike other major subsystems and thus does not warrant a separate specialty; we have not made the same determination regarding munitions, thus a separate specialty has been retained at the company grade level.

TABLE 2

AIR FORCE SPECIALTY CODE STRUCTURE 1988

Aircraft Maintenance and Munitions Utilization Field

4016	Maintenance Staff Officer
4024	Aircraft Maintenance Officer
4054	Munitions Officer
4096	Aerospace Maintenance Director

Before concentrating on the appearance of the career field as it exists today, it is important to review other manifestations of this evolution of specialties. One obvious aspect is the proverbial "the more things change, the more things stay the same." This is surely noticeable in the wording of the career field descriptions. The Maintenance Engineering and Aircraft Maintenance and Munitions Utilization Field descriptions will be used to illustrate.

A review of the introduction to the utilization field reflects a remarkable similarity among the 1952, interim, and current versions. In each, the field

"...encompasses the functions of program formulation, policy planning, production management, quality control, inspection, and direction....immediate supervisory and technical responsibilities..."  
(18:198;23:A13-11;24:A13-11)

In spite of significant technological advances, new weapons systems, and diverse organizational structures (the more things change) the description of the career field reflects consistency in the nature and level of the job (the more things stay the same).

Another aspect of this historical perspective is the gradual evolution from a technical or "specialist" orientation to a managerial or "generalist" construct. To illustrate, we will review the 1952 and 1976 revisions of the AFM 36-1 specialty descriptions for the Aircraft Maintenance Officer (AFSCs 4344 and 4024). Specific attention will be focused on the Duties and Responsibilities and Specialty Qualifications portions of the specialty description.

The first area of comparison is the two line Specialty Summary. In both versions, the first word is "Manages"; one is given then to the notion that maintenance officers are managers first and foremost. What is managed depends upon the state of the evolutionary cycle of the

business of aircraft maintenance. In the 1952 version officers managed activities such as "overhaul, modification, maintenance and repair" whereas by 1976 they managed "field, avionic, and organizational maintenance functions" which happened to correspond to the titles of the three squadrons under the centralized maintenance structure. Another area of interest in each summary is "commands...maintenance units." Herein, then, one can presume that aircraft maintenance officers are, or can at least qualify as, leaders by virtue of their authorization to command.(18:209;22:A12-23)

A comparison of the Duties and Responsibilities sections of each manual reveals a relative consistency. Although the latter version is more verbose, the basic tenor remains. There are four primary subareas. The first three are almost verbatim: "Plans and organizes...maintenance activities," "Directs aircraft maintenance activities," and "Coordinates aircraft maintenance activities." Although there is only a one word change in the fourth area, it is a significant change. In 1952, the description read "Performs technical aircraft maintenance functions" whereas the 1976 version reads "Supervises technical aircraft maintenance functions."(18:209;22:A12-23) This denotes the change in focus over the years from technician to supervisor or manager, and from specialist to generalist.



A review of the Specialty Qualifications attendant to each description further amplifies this aspect of career field evolution. The earlier version clearly reflects a technical orientation. Under Education, the description reflects the desirability of knowledge and education in "chemistry, electricity, and mathematics" and completion of a "Bachelor's degree in aeronautical or mechanical engineering." (18:210) By 1976 the trend towards a more general perspective is readily apparent. The Education area has been divided into Knowledge, which addresses the need for knowledge in management procedures in aircraft maintenance and related logistics fields, and Education, which reflects the desirability of a "bachelor's degree, preferably in management or engineering." (22:A12-24)

A further example of the sensitive and often confusing nature of career field descriptions is evidenced by way of comparison of the specialty description in the 30 April 1976 change to AFM 36-1 and the career progression guides in the 16 April 1976 edition of AFR 36-23, Officer Career Development. While the former is clear in its emphasis on the managerial generalist, the latter still reflects three separate specialties (avionics, aircraft maintenance, and munitions) and a differentiation between staff officer "managers" and company grade officers who perform as "specialists and first line

supervisors." (16:22,23,24) A further aspect of this specialist versus manager issue is found in a "General Career Profile" in the same AFR 36-23. This chart reflects that within the total force structure, the requirement at the lieutenant grade is strictly for "specialized experience." Although the need narrows sharply, it continues through the grade of colonel in the 26 year group. The need for "managerial experience" enters the chart at the grade of captain (five year point), broadens through the major to colonel grades, then narrows but continues through the flag ranks. (16:4-10) The change in thinking over time relative to the emotional specialist versus generalist issue is further reflected in the fact that such a general career path or profile is not included in the current AFR 36-23. (17)

Our journey through the history of the various maintenance career fields is complete. The evolution from many specialties to few, from a technical orientation to a focus on management, and from specialist to generalist is readily apparent. This trek brings us to the force structure existing today. What is the nature of the maintenance career field? Is it prepared for the realities of today and the challenges of tomorrow?

## CHAPTER III

### TODAY'S CAREER FIELD IN PERSPECTIVE

Changes to the basic utilization field structure have been minor since the conversion to AFSC 40XX, reflected previously in Table 2. The same four specialties remain with some alteration to the Duties and Responsibilities and Specialty Qualifications. Closer examination, however, highlights a fundamental structural flaw and internal inconsistencies, owing primarily to two different offices executing functional manager responsibilities and the reactive versus proactive nature of career management. Change 6, dated 15 September 1986, to AFR 36-1 will be used to illustrate.

#### Specialty Description

First, and most apparent, the utilization field is mistitled. The "Aircraft Maintenance and Munitions Utilization Field" implies that the business of munitions does not involve the "maintenance" of munitions. Yet in the course of a career, aircraft and munitions personnel progress to a combined Maintenance Staff Officer and, hopefully, to Aerospace Maintenance Director. Given this pattern of progression, would it not be more appropriate to call AFSC 40XX the "Aircraft and Munitions Maintenance Utilization Field?"

The second aspect is the apparent longevity of the basics of the utilization field. The "Introduction" to the field has remained virtually unchanged since the 1977 version. It still outlines the same functions and supervisory and technical responsibilities addressed in the previous chapter. The primary exception is the addition of "inventory management" (read as munitions supply) for munitions officers, a duty inherited from the supply field.(24:A13-11) Again, it appears the fundamentals are so general as not to warrant change in light of past technological advancement, revised organizational structures, and changes to personnel management and utilization policies.

Analysis of the Duties and Responsibilities section of each specialty again reflects only minor wording changes. The fundamental ingredients of planning, organizing, coordinating, directing, monitoring, and supervizing remain. The continued thrust away from technical specialization to general managerial tasks remains evident.

Some changes are noted in the Specialty Qualifications sections of the specialty descriptions. For the Maintenance Staff Officer the desirability of start level professional military education (PME) has been deleted.(24:A13-14) Another change is in the Education area for Aircraft Maintenance and Munitions Officers. Since

bachelors degrees are mandatory for all officers, we now state that undergraduate academic specialization in management or a technical area is "desirable." (24:A13-16/18) Lastly, for the Aerospace Maintenance Director, the desirability of senior PME has been deleted. (24:A13-20) What is more personally disturbing, however, is eighteen years of seeing how little attention is paid to the AFR 36-1 knowledge, education, experience, and training requirements in both the accession and upgrade of personnel in the maintenance utilization field. Accession requirements, as we shall see, are minimal and upgrade to "fully qualified" status is a function of survival for the minimum time.

#### Accession and Classification

The other accession tool, aside from academic degrees, is the Air Force Officer Qualification Test (AFOQT) required of all officers, excepting of course graduates of the Air Force Academy and other service academies. This test "measures aptitude" and can be used to "classify...into the most suitable Air Force career field and specialties." Five aptitude composites are scored: pilot; navigator-technical; academic aptitude; verbal; and, quantitative. Although the navigator-technical composite can predict success in training courses for maintenance, no minimum score has been established. (15:29) In fact, in the late 1970s and early 1980s it was the accepted practice to

access personnel with the absolute minimum possible scores across the board to make up for previous accession shortfalls.

#### Formal Training

The next step after accession and classification is formal training. This area will not be addressed in detail here but will be revisited in Chapter V. From personal experience, having attended courses at both Chanute and Lowry Air Force Bases, and being a former functional manager, this area has long been a weak link. Program changes have been, by and large, reactive not proactive; courses failed to keep pace with technological and management changes (engine advances, production oriented maintenance) and often taught subjects no longer valid when the individual arrived at the unit (exception time accounting). Resource managers have had difficulty soliciting volunteers to serve as instructors at both schools. And, in our push to keep the pipeline flowing, "washbacks" were infrequent and academic eliminations extremely rare. Times must change.

#### Authorizations and Demographics

Thus far we have reviewed three aspects of career management--accession, classification, and training. To complete the loop--assignments--we must first review the authorization structure. An Air Force Logistics Management

Center (AFLMC) analysis of this area concluded that AFSC 40XX authorizations were "top heavy" and that only "changes in authorizations and/or the methods used to determine authorizations" would correct this condition.(26:A2) Neither of these options have been or ever will be warmly received. The resulting lack of the desired "pyramid" or "Christmas tree" authorization structure is therefore inevitable.

Table 3 represents the AFSC 40XX Demographics as of October 1987, the start of this research project.(26:A1) Simple math acknowledges the 45/55 percent field grade to company grade split in authorizations. The Air Force Military Personnel Center (AFMPC) readily admits, as AFLMC pointed out, that this "top heavy" field grade split is not supportable given the existing company grade base. Given the current distribution of lieutenant to captain authorizations, established by the major commands, AFMPC is forced into an accession policy that results in lieutenant manning in excess of 200 percent.(27) This force structure results in company grade officers "grade substituted" in field grade billets and job repetition for both company and field grade officers.(26) The former must eventually draw attention to the appropriateness of the authorization base itself; the latter, clearly, can impact morale and perceived career progression.

# AFSC 40XX DEMOGRAPHICS

## 40XX Authorized Versus Assigned as of Oct 87

	LTS	CAPT	MAJ	LTC	TOTAL
AUTHORIZED	356	1624	921	692	3593
ASSIGNED	1041	1565	561	579	3746
% MANNING	292	96	61	84	104

## 409X Authorized Versus Assigned as of Oct 87

	LTS	CAPT	MAJ	LTC	TOTAL
AUTHORIZED	0	0	0	222	222
ASSIGNED	0	2	37	200	239
% MANNING	0	0	0	90	108

## 401X Authorized Versus Assigned as of Oct 87

	LTS	CAPT	MAJ	LTC	TOTAL
AUTHORIZED	0	0	890	470	1360
ASSIGNED	17	439	494	373	1323
% MANNING	0	0	56	79	97

## 402X Authorized Versus Assigned as of Oct 87

	LTS	CAPT	MAJ	LTC	TOTAL
AUTHORIZED	268	1201	19	0	1488
ASSIGNED	764	874	28	4	1670
% MANNING	285	73	147	0	112

## 405X Authorized Versus Assigned as of Oct 87

	LTS	CAPT	MAJ	LTC	TOTAL
AUTHORIZED	88	423	12	0	523
ASSIGNED	260	250	2	2	514
% MANNING	295	59	17	0	98

A simple review of these authorizations begs several questions. How are authorizations determined? Not very scientifically. Although there is a formal manpower determination process, personal experience suggests that, for officer specialties and grades, it is largely subjective



and at the whim of the major commands and the functional manager. Why has the authorization base not been arbitrarily restructured into a self supporting format? Again, the major commands and the functional manager are adamant with regard to the need for field grade authorizations, regardless of the base structure needed to "grow" the personnel to fill these billets. They are also the first to bemoan the fact that company grade officers are grade substituted into field grade billets. Although correctable, the existing career field authorization base forces the functional and resource managers and the major commands to "make the most of a bad situation."

#### Assignments

What policy is used in making personnel assignment against this authorization base? AFR 36-23 states that we need "career maintenance managers with extensive and varied logistics support backgrounds" and thus officers should serve "in a variety of aircraft maintenance and munitions positions throughout their career." (17:106) Both HQ USAF/LEYM, the functional manager, and HQ AFMPC Palace Log, the resource manager, assert that to accomplish this necessitates a "free flow" assignment process that does not restrict movement between major commands and weapons systems. They also acknowledge, however, that some personnel do become identified with one primary command.

Their fallback position is that the Air Force needs both "generalists" and "MAJCOM specialists." (26:28)

Each aspect of career management--accession, classification, training, and assignment--has some factors in need of repair. Accession standards or requirements are minimal. Classification requires unneeded specialization at the company grade. Training reacts to advancement rather than accompanying or preceding the change. And assignment practice differs from the stated policy. The issue at hand is whether we have properly identified the type and mix of officers necessary and whether it will change measurably given the technological and organizational changes that loom over the horizon.

## CHAPTER IV

### ISSUES FOR TODAY AND TOMORROW

Many articles in scores of professional journals have addressed the challenges that lay ahead in the next century. At issue is our preparation to handle what is clearly a three tiered dilemma: maintaining the current force into the foreseeable future; fielding and integrating a host of new technologies; and, developing the organizational and support structures in light of budgetary and resource constraints. As is usually the case, our readiness in some areas is quite good, in others it is less than desirable.

#### Maintaining the Force

It has been stated several times that aircraft currently on the ramp will account for 70 to 80 percent of the total Air Force inventory at the turn of the century.(7:13) This naturally calls into question today's capability to support today's force. Most of us are aware of the tremendous efforts expended the past eight years to improve the supportability posture of the Air Force, in terms of supplies, equipment, and personnel. We have "thrown" money at overcoming the parts shortage while developing management systems to preclude similar problems in the future. We have also introduced a number of

personnel initiatives to improve enlisted maintenance specialty classification, utilization, and training.

Efforts to enhance supportability has indeed improved, as has our overall capability. Increased availability of spares has resulted in higher in-commission and sortie generation rates. And to ensure the problems of the past do not recur, considerable emphasis has been placed on the logistics "ilities"--reliability, maintainability, availability, and supportability. Air Force Logistics Command has developed the Weapon System Master Plan which emphasizes a coordinated projection to enhance combat capability.(7:13) Although geared supposedly to addressing total availability and supportability requirements for future weapons systems, the plan fails to include personnel needs--specialties or numbers.

To address the personnel issue, HQ USAF/L&M initiated a program in 1980 to correct deficiencies in maintenance personnel classification, training, and utilization. The thrust of this effort was to overcome the "manpower intensive, highly specialized" enlisted structure of the day. Although meeting initial resistance, the effort gradually gained acceptance and a name--Rivet Workforce. This program established four objectives: orient "maintainers" to a particular weapon system or family of systems; combine specialties with similar technologies,

focusing on "on equipment" tasks; focus training and development policies on progression from Airman to Master Sergeant; and, revisit unit manpower standards for accuracy. Although initially aimed at correcting problems of the past, Rivet Workforce is a "vehicle for orderly, proactive change." (2:3-5) What has not been addressed in any similar degree is what we expect or require of the maintenance officer of the future whose job it will be to lead these new, more capable maintenance technicians.

#### Fielding Tomorrow's Force

And what kinds of systems will these new technicians be required to support? Tomorrow's aircraft, the Advanced Tactical Fighter and Advanced Technology Bomber, have awesome potential, but the technological challenges are equally formidable. (6:32) The Air Force's Project Forecast II has painted the picture of future research efforts, highlighting "thirty-nine technologies and thirty-one advanced systems" that will maintain our supremacy over any adversary. Despite continuing pressure to field "simpler, presumably cheaper systems," the forecast serves notice that technology will remain the focus of increasing combat capability even under greater budgetary constraints. (4:47)

The Forecast II report categorized the initiatives in six categories:

"propulsion and power; vehicles, structures and materials; electronics and optics; weapons; information, computation, and displays; and, system acquisition and support."(4:48)

Some of the specific ideas envisioned in this multi-faceted program sound more appropriate for Star Trek than the Air Force we serve. New fuels could have sufficient energy that only one gram would power a trip to Mars and back in only two months. Trans Atmospheric Vehicles would travel from New York to Tokyo in two hours. "Super cockpits" would be equipped with artificial intelligence systems and panoramic displays on the pilot's helmet visor. Aircraft would be manufactured with "smart skins" containing embedded phased arrays, thus replacing "bulky antennae, sensors, and communications devices."(1:20) The challenge to ensuring the availability and qualification of maintenance technicians is obvious.

A second major research project is geared to addressing "the problem of maintaining increasingly complex military aircraft" of the future. The Generic Integrated Maintenance Diagnostics (GIMADS) program focuses on designing maintenance diagnostics internally to these new systems. GIMADS would incorporate advanced computers to provide "redundancy in operating functions," and new technologies such as "fault tolerant avionics architectures and very high speed integrated circuits" to manage multiple

internal systems. The net result should be fewer line replaceable units and improved maintainability.(8:1077)  
This system is envisioned as an aid to maintenance personnel, but what of the maintenance technician required to maintain the GIMADS structure itself?

Both the Project Forecast II and GIMADS highlight the potential of our always forward push to exploit the advances of technologies. The logistics support systems for these new capabilities will certainly tax our personnel resources. But once again, none of the publications touting these future capabilities address maintenance personnel requirements. We cannot afford to let the past be repeated, then devise a "Rivet Workforce II" to correct enlisted specialty shortfalls. Nor can we continue to think that maintenance officers produced by the current accession, classification, and training apparatus will be qualified or capable of leading a far more sophisticated workforce in a more demanding environment.

#### Meeting Organization Needs

And what sort of maintenance organizational structure will be required to support the Air Force after the year 2000? Will we see an adaptive continuation of the existing centralized and decentralized concepts? Will the budget and/or threat force us to smaller, more independent and widely dispersed units? Or will we need composite

organizations with multiple weapons systems--a stand alone strike force tailored to one specific mission?

Certainly, for the foreseeable future, the existing organizational concepts will suffice, at least from a maintenance perspective. The centralized concept for large aircraft and decentralized concept for fighter aircraft seem well tailored. Strategic Air Command is comfortable with the centralized concept for its bomber and tanker force, and full beddown of the B-1 would, in all probability, necessitate only minor changes. Military Airlift Command is similarly pleased with the centralized concept in the continental US and has adapted consolidated support units for assets in the airlift "channel." And, the Tactical Air Forces see little need to abandon the decentralized concept, recognizing the subtle command differences to accommodate Tactical Air Command's deployment needs and the employment nuances in the European and Pacific theaters of operation.

Even with the obvious advances in technology and the conversion of weapons systems, there appears little need to alter substantially the organizational structures that presently serve the commands so well. Although future aircraft will introduce new on-board systems, at most there would be a need only to realign certain "shops" within the existing squadrons. The biggest change and challenge will be early recognition of the need to train personnel to



maintain these new aircraft. Nonetheless, there are voices contending changes must be made, focusing on how we intend to fight.

The first effort is focused on countering the increasing vulnerability to attack of "large, fixed main operating bases." The Air Force 2000 report called for a "dispersed air basing strategy" that places emphasis on "unit mobility, flexibility, and autonomy, and will require a leaner, more broadly trained workforce." (2:3). Supporters of this concept contend it will be mandated by a combination of demographic and budgetary realities. This ostensibly was a motivating factor behind the Rivet Workforce specialty restructuring effort.

The second effort argues what is needed to meet today's threat is "relatively self-contained, self-sufficient fighter wings that can launch from one base all facets of a strike force package...." This composite wing would consist of various mixes of A-10, F-15, F-16, and eventually ATF aircraft grouped to perform one of three missions: "counterair, interdiction, or close air support." It is not important here to argue the operational merit of such an organizational concept. What is obvious are the logistics hurdles--redistributing of munitions and supplies, new facility construction, spares stockage, and the

increased number and variety of manpower requirements--that must be overcome to effect such a concept. (14:11-14)

The challenges of the future are apparent, but not insurmountable or necessarily even formidable if we develop a strategy today to meet them. The Air Force has worked diligently to field new systems, construct maintenance facilities, and provide adequate spares levels. Attention to personnel needs has received less attention; more authorizations were often the only solution to every problem. A host of realities forced functional and resource managers to redress past shortsightedness, hence Rivet Workforce. A similar approach has not been forthcoming to assess the quality of maintenance leadership. This is not to imply that the 40XX career field suffers a major malaise that threatens our combat capability. But attention to accession, classification, training, and assignment needs has been lacking. It is time to ensure that maintenance leaders and managers are "as we would want them" and not "as we have come to accept."

## CHAPTER V

### SOLICITING A SOLUTION

As previously stated, the thrust of this research effort was to determine if the accession, classification, training, and assignment policies of today were, first, correct and, secondly, responsive to the needs of tomorrow. The approach to find the answers followed a three-pronged approach. First a series of letters went out to HQ USAF/LEYM, HQ AFMPC, and the Directors of Maintenance at HQs TAC, USAFE, PACAF, SAC, and MAC. These letters focused on the following questions: what initiatives are currently in work regarding career management for the maintenance discipline; are changes needed to accession standards; should the aircraft and munitions officer career fields be combined; are any changes necessary and/or programmed for expanding basic training, especially in technical orientation or instruction in other logistics disciplines; and, was there a desire or need to close loop officers to specific commands, or similar commands? In addition, HQ AIC was asked to provide data on on-going or proposed changes to the existing basic training courses for both aircraft and munitions maintenance officers. The second prong was a review of previously published sources including professional journals, Air Force manuals and regulations.

and similar studies in this area. The third prong was a number of one-on-one discussions with fellow maintenance officers. To structure the results, we will look first at current initiatives and then what was suggested for the future.

#### Current Initiatives

The issue of consolidating the aircraft and munitions maintenance career fields was addressed by the Air Staff in 1985, but an agreement could not be reached between the two functional managers. It was readdressed in 1986 with a more favorable outcome, at least in principle. The proposal was presented to the major commands in January 1987 but was not accepted by all attendees. The major stumbling block focused on the "uniqueness" of munitions, especially the perceived need to define and track nuclear expertise. The discussion then shifted to training, where the commonality of material in the core courses surfaced. This redirected the effort to one of major modification of training programs rather than a reclassification of career fields.(29)

Part of the discussion on training focused on the utilization of 40XX officers. This highlighted two trends: aircraft maintenance officers performed aircraft maintenance whereas munitions officers performed both munitions and aircraft maintenance. The fundamental problem was expressed

by the Air Staff as follows: training did not match personnel utilization. The aircraft course was 20 weeks, the munitions course 14 weeks, with considerable commonality, but a difference in emphasis. Despite having separate courses, with two separate specialties, both officers were being used interchangeably. And the classification structure has both disciplines merge to become a maintenance staff officer. The bottom line was that officers were not prepared for the "full range of duties and responsibilities" that would surface during one's career.(28:A1)

The proposal to merge the training programs received unanimous approval at a major command, joint Director of Maintenance and Director of Munitions conference in August 1987. The training merger will result in one initial maintenance officer course of approximately 21 weeks duration. A separate, follow-on course of about three weeks will be provided to all officers selected for assignment to nuclear capable units. The benefits envisioned from this approach include better preparation for potential duties and responsibilities, increased flexibility for DCMs, better utilization of officers, and better preparation of senior logisticians.(28:A3) This merger is not a panacea, however.

Whether the functional and resource managers and the major commands realize or will admit it or not, this merger

is de facto recognition of the inevitability of consolidating the two career fields. One training course that results in two separate specialties simply will not survive. While one course may better prepare officers for the full range of jobs they may face, it does not therefore, by default, guarantee better personnel utilization. And this merger will not make better logisticians; maintainers yes, but "maintainers do not logisticians make!"

The merger of the basic courses is the first step in what the Air Staff sees as a three part serial to develop a 40XX training continuum. The second part would incorporate a series of Air Force Institute of Technology (AFIT) logistics continuing education courses. The third step incorporates major command unique training programs, both systems and procedures oriented. Both will be reviewed briefly.

The AFIT logistics continuing education concept is designed to "broaden logistics officers." It includes four courses, spread across the officer's career. These courses cover: Introduction to Logistics; Combat Logistics; Intermediate Logistics Management; and, Senior Logistics Officer Development. These courses would be available via correspondence, seminar, and residence and would be "mandatory for early upgrade to staff AFSCs." (28:A4)

The proposed major command training program satisfies a perceived need to fine tune officers with technical or hardware training and "unique" management or procedures training. They are based on the "everything you need to know about" and "how to succeed in" concepts of personnel management. These courses, offered by correspondence and in residence, would be mandatory upon the individual's first assignment to a particular weapon system or command, or after a three year separation from either.(28:A5) There are hidden messages here for those involved in the business of classification and assignment. This will be developed in more detail later in this chapter.

This is the sum of current initiatives to better prepare maintenance officers. To assess what the future may hold and where it might lead, we will next look at the inputs received to the letters of inquiry. We will first assess the perspective of the functional manager followed by that of the resource manager. To round out this review, we will then turn to the inputs from the major commands.

#### Functional and Resource Manager Perspective

The functional manager provided a candid overview of the Air Staff perspective of 40XX career field management. First, there are no changes under consideration regarding accession policy (specialty entry requirements). Nor are they entertaining, at this time, any consideration to

combining the aircraft and munition maintenance officer career fields. In fact, the subject has been purposefully avoided because of the emotional, volatile nature of the issue. With regard to assignments, the Air Staff has advised Palace Log that the Air Force needs "well rounded maintenance officers with a good breadth of experience," but is quick to add that "there has been some de-emphasis of the Palace Log career development role." Therefore, while stating that "current assignment policy does not close loop officers to specific commands" the Air Staff acknowledges that the major commands have acquired considerable latitude in influencing the assignment process. It is the functional manager's position that the Air Force needs a "good mix of officers with general maintenance background and officers that tend to be identified with a specific command." (28) This, one would assume, is the guidance provided to the resource manager.

Palace Log acknowledges that there are no "mandatory undergraduate degrees" or minimum AFQT scores required for accession into the maintenance career field. Rather than engaging in discussion of the need and/or merit of such a prerequisite, they were quick to outline the "bureaucratic jungle" that must be traversed to effect such a change. (29) In defense of Palace Log, the AFMPC Personnel Measurement Division advised that the AFQT is "primarily an accession



tool" to assess potential in commissioning programs and was not designed as a classification tool. Research, in fact, has not been done to validate the navigator-technical composite for determining success in a particular career field.(25) Palace Log also advised that minimum scores had been established for the Verbal and Quantitative AFQT composites for all officer accessions.(27)

As noted earlier, Palace Log acknowledged the difficulty supporting field grade requirements with the existing company grade base. They do not consider the resultant grade substitution and job repetition as deleterious and consider professional development still achievable by rotating personnel between commands and weapon systems. They also stated cross flow opportunities existed into AFSCs 0046 (Director of Logistics), 0096 (Director of Resource Management), and 66XX (Logistics Plans and Programs). Like the Air Staff, Palace Log agreed that the Air Force does not have a "MAJCOM based closed loop assignment system" but acknowledged that "there are officers who have tended to be identified with predominantly one MAJCOM." As for latitude in assignments, AFMPC believes crossflow between centralized and decentralized maintenance concepts builds the functional manager's "rounded officers with a good breadth of experience." (26) In word, if not in

deed, the resource manager certainly seems to be supporting the desires of the functional manager.

The policy formulators and implementors have stated that there is a need for a good mix of "maintenance generalists" and "command specialists." AFMPC has identified "generalist" as someone qualified in two logistics disciplines or someone with experience in both the centralized and decentralized maintenance concepts. 27. There are very few of the former and the latter is a simplistic definition. What was not identified by either the Air Staff or AFMPC was the number of "generalist" positions, nor where they were located. Absent from this "policy" is recognition of the obvious--people are selected primarily on past experience or specific expertise. There are few, very few positions requiring generalists.

While on the subject of generalist, just what exactly did the former AF/LE have in mind when he suggested we need "logistics generalists?" A member of the Research Analysis Corporation has stated that within the next ten years "the primary professional personnel classification will be the Logistician" and that the separate functional specialties of maintenance, supply, etc. will be a suffix or this basic code. He further alleges that the "major problem has been functional sub-optimization" that has adversely impacted the logistics system, the mission, and caused

embarrassment to the military.(12:48) But what is a "logistics generalist" and if the professional community does adopt this classification approach will the military necessarily follow suit?

One U.S. Army counterpart has defined "logistics generalist" as

"a master of logistics, professionally developed and skilled in multiple logistics functions...expertise in managing personnel, resources, information services, maintenance, supply, transportation, and procurement...a working knowledge of research theory, the application and use of statistics, integrated logistics support, and international logistics operations."(11:32)

This certainly appears to be a pretty full plate for one individual. Again, however, it has been asserted that this, with the corresponding classification coding, will be a natural outgrowth of the civilian logistics profession becoming "more complex, more educated, more systems theory oriented, and computer dominated."(12:49) Such a shift in direction and personnel management would demand significant changes to existing accession, classification, training, and assignment policy and procedure.

Returning to the impact of the assignments and "specialists versus generalists," AFMPC has also stated that some people desire to remain at unit level throughout their career while others prefer to serve only at the staff level. In the first case, AFMPC alleges there is no reason

individuals cannot enjoy a successful career entirely at the unit level, whereas there is not a need for professional staff officers.(27) There are several inconsistencies in this argument. First, success strictly at unit level is a matter of definition of success--will lieutenant colonel, squadron commander qualify? If we do not need professional staff officers, why do so many in our business "appear" to go from staff to staff? If staff tours are not a prerequisite for promotion, why is this the declared view of assignment officers, AFR 36-23, and Air Force senior officers? Does not a staff tour help develop "well rounded officers with a breadth of experience?" And somewhere in this self realization why not admit that "ultimate success," advancement to general officer, in this business is only possible via AFMC channels. The ultimate the rest of the "maintenance community" can hope for and aspire to is colonel, preferably at the staff because more and more "career maintainers" do not covet the hectic life of a DCN.

A word or two on fundamental "career management" theory is in order at this point. Today's Officer Career Development Program is based on a process where personnel, especially rated officers but also nonrated officers, are "'careerred" so far as possible in their original specialties." For both groups of officers, the "stated primary purpose of career management" is to, first, prepare

officers to assume increasing levels of responsibility within the defense apparatus and, second, to prepare officers for advancement.(3:98) The underlying theme here is that one enters active duty as a "specialist" and grows, within that specialty throughout one's career, to meet Air Force needs. That is the theory; what is the practice?

In meeting the primary purpose, it is acknowledged that most officers, in our case maintenance officers, are, by initial training and classification, specialists. Over time, and through progressive assignments and job opportunities, one would expect to advance. Theory holds that as one progresses, horizons broaden as does understanding of "the big picture." The natural continuation of this theory is evolution of a generalist within each career area. This naturally begs a question as to why, when advancement requires generalists, senior officers insist on maintaining officer specialists. The answer is simple: a certain number of officers advance to colonel, each understanding that to continue to generalist (read that as general) requires subordinates "with good reputations and extensive experience in their respective career fields--they want specialists." (13:29-30) The system needs specialists to function and the generalists will bubble to the top to take charge.

### The Major Commands Weigh In

The consensus of the major commands responding to the inquiry shows some variance from the aforementioned "guidance from above." These differences are not particularly major, but they do beg a question or two. Have the major commands expressed their real concerns to the Air Staff? Has the Air Staff effectively supported the desires of the major commands? The issues are not particularly "easy" to solve, but it will only be done via a coordinated major command and Air Staff approach, and not the medium of an individual research project.

Three of five commands responding commented on the need for such a reflective look at this subject, one that requires "careful thought and planning today" to ensure we are prepared to meet the challenges of the future. Only two commands specifically addressed the "generalist" issue. One stated that "purposefully diluting the training of our maintenance officers does not equate to a war winning philosophy." (30) Another offered "The 'generalist' should come by training our maintenance officers in other logistics areas as they interact in their primary field." (32) While not specifically addressing the "generalist" versus "specialist" argument, several commands think "specificity" is required in some areas.

In the area of accession policy, none of the respondents expressed a need for undergraduate degrees in scientific or engineering fields. However, four of five specifically addressed a need for maintenance officers to possess a technical competence, the ability to grasp technical and mechanical concepts. In this light, while none recommended instituting AFJOT minimum scores, two or five suggested some means of measuring technical aptitude prior to selection for initial training. (30;31;32;33;34)

With regard to the long-standing classification issue of combining the aircraft and munitions maintenance officer specialties, three of five commands favored consolidation. One holdout, who also hinted at separation even at the field grade level, has no organic munitions responsibility. Despite recommending the merger, the need to retain some level of munitions expertise was recognized and advised, especially in the nuclear field. (30;31;32;33;34) Clearly, this issue will bubble under the surface until all participants step up, put parochialism aside, and decide what is best for the Air Force.

All respondents appear satisfied with the proposed changes to the basic maintenance training courses. None recommended adding instruction in other logistics disciplines, aside from the supply fundamentals already

included. Any further logistics training was recommended as follow-on courses at the senior captain and major ranks as part of total career development. (30;31;32;33;34) This seems to suggest that maintenance itself is a difficult business that can consume an entire career. The thought, therefore, that one can become a "logistics generalist", equally competent in several disciplines, seems less likely in fact than in theory.

The last area of consideration involves the assignment process. None of the respondents favored a closed loop structure similar to the Rivet Workforce linkage to specific weapon systems or families of weapon systems for the enlisted force. Each did, however, see a need to put stability in the process by linking individuals to commands. Whether "command uniqueness" is a legitimate argument, the commands want maintenance officers that understand the management system and have technical competence on the weapon system. They do not relish a constant "retraining" of each new inbound. While acknowledging the need to fill Air Staff, Air Force Logistics Command, Air Force Systems Command, and possible joint billets, these are considered exceptions to the rule and should not negate the potential benefits of a command based system. (30;31;32;33;34) Whether the desires are much different, in fact, than the actual system is a matter of interpretation. Nonetheless, commands



want their own resources; they may be willing to exchange personnel within similar maintenance concepts and weapons systems, but "free flow" or "any option open" is not what the users want and perceive they need. The "staff," the functional and resource managers, should provide the users what they need to get the job done.

## CHAPTER VI

### CONCLUSIONS

In the introductory chapter it was posited that the Air Force was not as aggressive in the management of the mission support skills as it was in the operational skills. The primary focus of this contention was broadly addressed as the area of logistics and most specifically the field of aircraft and munitions maintenance. In fact, it was stated that the style had been predominantly reactive rather than proactive, but that this trend would not be acceptable given a threefold challenge of rapidly advancing technology, declining available cohort base, and congressional pressure for reduced force strengths. The logistics support structures of the future will certainly face major challenges and opportunities in this new environment. This will be especially true in the area of personnel management.

The excursion through personnel management of the aircraft and munitions maintenance business began with a historical perspective--a look at "our roots." This review reflected both stability and change. It has been stable in the sense that there has always existed the need for personnel disciplined in planning, organizing, directing, coordinating, and supervising maintenance activities. The change has come in the evolution from many technically

oriented to a few managerially oriented specialties. The changes in education and training requirements attests to this evolution.

A snapshot of the maintenance utilization field of today reveals several interesting features. First, the field is mistitled the "Aircraft Maintenance and Munitions" utilization field, thus giving the impression that we do something with munitions but we do not maintain them. Second, accession standards are not stringent--there are no mandatory undergraduate degree areas of specialization, until recently there were no minimum AFQT score standards, and there are no technical aptitude requirements for a field of disciplines that is technically based. Third, recent initiatives aside, training programs have epitomized the reactionary nature of mission support skill management. Lastly, the current demographics reflect an authorization base so skewed to the field grade side as to necessitate overmanning of lieutenants and undermanning of majors and lieutenant colonels, thus driving grade substitution and job repetition. This is certainly not ideal career management in any meaningful analysis.

When we look at the future we again see a threefold challenge: maintaining a significant number of current aircraft into the next century; fielding and integrating a host of new technologies and systems; and, developing the

organizational and support structures for both. The first involves improving the reliability, maintainability, availability, and supportability of existing systems. The second requires integrating many and vastly different systems and technologies into this structure. The third requires detailed assessment of employment scenarios to define the organizational concepts best tailored to successful mission accomplishment. And to orchestrate and lead this evolution, we need maintenance officers with the capacity and ability to understand these new systems and to lead an enlisted workforce far more capable than in the past.

In assessing whether or not today's maintenance officer is prepared to meet these challenges, several interesting insights come to the surface. First, aside from the undergraduate degree and AFDDT Verbal and Quantitative minimums required of all new accessions, there are no specific entry requirements into the maintenance disciplines. The contention is that, with time, maintenance officers lost the need for technical competency and can succeed on management prowess alone. It certainly eases the accession process but it is a naive approach to the future.

Second, both the functional and resource managers have stated the need for "well rounded maintenance officers with good breadth of experience;" this provides us the

generalists, the touted Air Force philosophy, that we need. They are quick to add, however, that some personnel do become identified with specific commands and become the "command specialists" that we also need. Reality, however, shows all too few duty positions requiring "generalists" and a career management system that acknowledges without "command sponsorship"--command specialists--promotions are few and tenure is short.

Third, the authorized grade structure needs an overhaul. The existing field grade to company grade authorization split is not compatible with sound career management philosophy. But rather than correct the problem at the source, the Air Force has elected to use work around methods to make the aberrations tolerable. This results in "the system" telling commands that grade substitution is a necessary fact of life and telling the individual that job repetition is career enhancing.

Fourth, the recent initiatives to "remedy" initial training is another example of our reactionary proclivities, but a welcome change nonetheless. The proposed AFIT continuing education courses will be beneficial, but not for all officers. The proposed courses all deal with "logistics." The logistics career area includes missile maintenance, aircraft and munitions maintenance, transportation, services, supply, acquisition contracting,

and logistics plans and programs. No one can become proficient in all these disciplines. That some should be afforded training and employment opportunities in more than one of these disciplines is recognized, but this is assuredly the exception rather than the rule. And the proposed major command training courses carry two messages: the commands want personnel technically "qualified" on specific systems and managerially competent in specific organizational concepts.

Lastly, the day to day employers of maintenance officers, the major commands, have slightly differing perspectives than those offered by the functional and resource managers. And they acknowledge that this is an issue that requires careful thought and planning today to ensure we are prepared to meet the challenges of the future. The consensus bottomline reads as follows: maintenance officers need a level of technical competence; the aircraft and munitions AFSCs should be combined, provided nuclear weapons expertise is maintained; there is no need to expand training programs with instruction in other logistics disciplines; "logistics generalists" are not attainable; and, although they understand the "system" they endeavor to link personnel to commands to maintain continuity and experience. The real bottomline is whether there is significant differences between command desires and how the

"system really works" and between real operations and what the functional and resource managers profess as "policy." It is time to put aside parochial perspectives and build a system that provides what we need to best do our job.

## CHAPTER VII

### RECOMMENDATIONS

"Perhaps nowhere else is the attention to war fighting dimensions more critical to the Air Force than in the field of logistics."(9:10) The environment of the future will be markedly different from that of today and the challenges and opportunities for the logistics support systems are evident. This will certainly be true in the personnel arena.

"No single resource has a greater impact on Air Force readiness and the capability to support national security objectives than our people."(10:70) It is people who develop, implement, and maintain the logistics support systems that will provide us the sustainability for our war fighting. It is in the personnel arena, especially those aspects addressed in this report, that the Air Force has extensive latitude to effect the changes necessary to ensure our resources are prepared for their responsibilities.

Air Force maintenance personnel, enlisted and officer, have long been and, in some senses, still are taken for granted. The reverse side of the Maintenance Officer Association membership card reads: "...there is nothing glamorous about maintaining aircraft and there never has been..." But there are a lot of proud people in this



business and they are interested in ensuring we are ready to meet any challenge. While Air Force leadership at the highest levels works diligently to sustain quality of life we must endeavor to "field" the most capable fighting force attainable. And it all starts with the standards we set for ourselves.

We have made great strides in the enlisted maintenance specialties over the past seven years. Credible program enhancements are underway and others are on the books. The key will be to maintain the level of progress. It is now time for us to look at the officer side of the issue. This can be done in three stages.

#### Stage One--The Near Term

For the very near term we must press ahead vigorously with the proposed changes to the formal training program. The merger of aircraft and munitions courses cannot be delayed much longer without impacting capability. The obvious attendant action is the merger of the aircraft and munitions specialties at the company grade level. Nuclear expertise aside, personnel utilization patterns do not support separate skills; such an argument is tantamount to saying we need to resurrect the avionics specialty. It is only natural given our proclivity for "managerial generalists." Planning and developing of the major command and AFIT follow-on training programs should proceed. The

implementation of the latter will, however, need to be tied to later personnel decisions on how we intend to develop and employ logisticians, both the generalists and the specialist.

#### Stage Two--The Intermediate Term

In the slightly longer term, we need to visit our accession and assignment philosophy. The commands responded to the inquiries stating that they desired a certain level of technical competence in their maintenance officers and that they desired to keep them on "elastic apron strings." To say that we "need" officers with technical competence is not to imply we must establish engineering degrees as a requirement; it is also not to say that we need officers who can perform in a "wrench turning" capacity. But they do need some level of capability to comprehend technical concepts and to discuss them with subordinates and superiors alike. If this is, in fact, desirable then action should be initiated to study tailoring the AFQOT or some similar testing apparatus to assess technical aptitude. One cohort suggested that the ability to make a decision was equally if not more important. While acknowledging the importance of this trait, it might be better addressed during other training fora, and not as an accession tool. Such devices as the Myers-Briggs Type Indicator and/or the Lead Matrix

should be administered early in an individual's career and not "saved" until attendance at senior FME.

The second intermediate term area is the assignment process. It is time to recognize that ensuring continuity and readiness is more important than equal sharing of gain and pain. The commands have come on line stating that they desire to retain a modicum of control over their personnel, recognizing the occasional tours outside the parent command. Command parenting builds stability, continuity, readiness, and sustainability. To move people between commands, weapons systems, and the like because of "turn in the barrel" or personnel management whims of a junior resource manager does not make good sense. This is not to say that people cannot move across command lines if they so desire nor is it to say that Air Force requirements should not be considered first. What it does say is that we need to take a hard, fresh look at how best to do the job, recognize the realities, and ensure the commands have the assets they believe necessary to do the job.

#### Stage Three--The Long Term

The longer term objectives are no less challenging. People enter the maintenance business from technical school as apprentice specialists, not as "ready" managers. In time they learn the systems and the processes and they grow, expand, and advance. As they advance, horizons broaden as

do their areas of knowledge and expertise. This does not, in and of itself, qualify them as generalist, a term that is rapidly losing its meaning in any operable sense. And the reality of a logistics generalist in its broadest context, below the Air Staff and AFLC levels, is ludicrous.

There are some very specialized aspects in the field of logistics, and they differ in the wholesale and retail arenas. Specialists are needed in both arenas and at all levels. Generalists, in the narrowest and broadest contexts, are more appropriately employed in the wholesale arena. It is imperative that we recognize this need and not arbitrarily and capriciously mandate "generalism" as the wave of the future or the wave will blow us over. As an aside, is the generalist concept receiving serious enough attention to consider major alteration to the tri-deputy system? I think not.

There is another aspect of what we expect maintenance officers to do, and that is in relation to our expectations of the senior enlisted corps. Senior and chief master sergeants are staff or management level ranks and we expect personnel in those grades to serve in those positions and in those capacities. Given these individuals, with proven years of training and experience, where does the officer fit in to the system? Why do we need officer and enlisted managers in the same units? Do we need them in the

grades and numbers we see today? These may well be areas for serious consideration and another research effort. The issue is wise personnel management.

Any meaningful restructuring of officer authorizations must begin with an understanding of the proper officer to enlisted mix required to best accomplish the mission. Once a philosophy or concept of operations is established then we can approach the skewed authorization base. The Air Force has labored long and hard, at least recently, through such techniques as the career progression guides, to make the enlisted specialties self-sustaining. The Air Force instituted arbitrary adjustments to the authorization structure to effect the "pyramid" or desired tract. This same concept and philosophy can be applied to the officer authorizations. First, we must define the relation and delineation of responsibility between officer and enlisted maintainers, then, we must take the difficult but necessary step to develop a career field that builds from the bottom up.

For the very long term we need a forward looking analysis of future weapon system impacts on the design and composition of tomorrow's maintenance officer. A program should be initiated to keep abreast of new technologies and concepts of operations and to define the role of the maintenance officer to thus ensure requirements are "front

end loaded" in our accession, classification, training, and assignment policies. It is time to be proactive. We cannot wait for the ATF and ATB to be fielded to determine what we want, expect, and need in our maintenance officers. The linkage is too obvious, the resources too scarce, the need too great to wallow in the reactive style of the past. Maintenance officers must face the issue with a clarity of purpose; the recommendations offered here provide but a departure point.

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## GLOSSARY

AFIT	Air Force Institute of Technology
AFLMC	Air Force Logistics Management Center
AFM	Air Force Manual
AFMPC	Air Force Military Personnel Center
AFOOT	Air Force Officer Qualification Test
AFR	Air Force Regulation
AFSC	Air Force Specialty Code
ATB	Advance Technology Bomber
ATC	Air Training Command
ATF	Advance Tactical Fighter
DCM	Deputy Commander for Maintenance
DPMRSL	Logistics Assignment Branch, AFMPC
DPMYO	Personnel Measurement Division, AFMPC
EDD	Explosive Ordnance Disposal
GIMADS	Generic Integrated Maintenance Diagnostics
HQ	Headquarters
LEYM	Maintenance and Acquisition Logistics Policy Division
LGM	Director of Maintenance
MAC	Military Airlift Command
MAJCOM	Major Command
PACAF	Pacific Air Force

Palace Log	Logistics Assignment Branch
PME	Professional Military Education
SAC	Strategic Air Command
TAC	Tactical Air Command
TTOA	Director, Technical Training Operations
USAF	United States Air Force
USAFE	United States Air Forces in Europe